

REMARKS

Reconsideration of this application and the rejection of claims 1-4 and 6-20 are respectfully requested. Applicant has attempted to address every objection and ground for rejection in the Office Action dated May 21, 2008 (Paper No. 20080515) and believe the application is now in condition for allowance. The claims have been amended to more clearly describe the present invention.

Claims 1-4 and 6-20 are objected to based on informalities. Specifically, the Examiner states that claims 1-3, 6, 9, 12-13, 16-18 and 20 contain improper means plus function language. Applicant has amended the claims to clarify the means plus function language and overcome this objection.

The Examiner also states that claim 11 does not recite a further structural limitation. Applicant has cancelled claim 11 and therefore, the objection of this claim is now moot.

Additionally, the Examiner states that the word "the" in the phrase "said at least the three receivers" in claim 14 should be deleted and the word "analog" in claim 16 is misspelled. Applicant has amended claim 14 in accordance with the Examiner's suggested amendment and corrected the spelling of the word "analog" in claim 16.

Claims 1-4 and 6-19 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement because the Examiner states that the use of terms "reference phase" and "reference

position” in the specification are confusing. To clarify the specification and overcome the § 112 rejection, Applicant has amended paragraph [0042] to change “reference phase” to “reference position.” No new matter has been added by this amendment.

Claims 1-4 and 6-19 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite because the Examiner states that it is unclear how the phase “measuring a reference position when said transmitting element is in the mouth of the subject” relates to the rest of the claim. Applicant has amended claims 1 and 9 to clarify that the method includes measuring the phase shift of the frequency transmitted by the transmission means relative to the measurement of the reference position. Accordingly, Applicant submits that the amendments to claims 1 and 9 overcome the rejection of these claims.

Claim 11 has been rejected under § 112, second paragraph, as being vague. Applicant has cancelled claim 11 and therefore submits that the rejection of this claim is moot.

Claims 1-4, 9-10, 14, 16 and 17 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,904,308 to Frisch et al. in view of U.S. Publication No. 2004/0015075 to Kimchy et al. Applicant disagrees with and traverses this rejection for the following reasons.

Frisch discloses a system and method for locating an in vivo signal source which utilizes an ingestible capsule 100 and an antenna array belt 10 to estimate a position of the capsule inside a subject's body based on the signal strength measured by the antennas on the belt. (Col. 3, lines 10-22 and 60-65; FIGs. 1A, 2 and 3).

Kimchy discloses a radioactive emission detector 22 that is equipped with a position tracking system 24 for calculating the position of a radioactive emitting source in a subject's body (See the Abstract). Specifically, the radioactive emission detector 22 is positioned outside of the subject's body and is moved on the body to track the position of the radioactive emitting source inside the body (Figs. 9, 12; ¶ 0173). The position tracking system 24 monitors the position of the detector 22 in a two or three-dimensional space in calculating the position of the radioactive emitting source (See ¶ 0112).

Applicant maintains that a person of ordinary skill in the art would not be motivated or have a reason to combine Frisch and Kimchy to achieve the claimed invention.

As stated above, Kimchy is directed to calculating the position of a radioactive emitting source in a body. Such a procedure cannot be easily applied in everyday clinical practice and requires a very significant human and material input. Also, the radioactive material presents problems with toxicity to subjects, and in particular to children and pregnant women, which makes it a highly

invasive procedure. Further, this procedure makes it often impossible to correlate the recorded phenomena for studying the motricity of an organ with transit measurements (See Applicant's specification, page 1, lines 4-18).

Kimchy also does not disclose using a reference position nor would it be obvious to use a reference position based on Kimchy. Instead, Kimchy determines the location of a radioactive emission source based on the position of the detector 22, which is outside of the body. Furthermore as stated by the Examiner on page 13 of the Action, Kimchy teaches other position tracking systems that determine the position of an object. These tracking systems however, determine the position of an object regardless or irrespective of the previous positions of that object (page 10, paragraph [0116]).

Based on these differences and the difference highlighted in Applicant's previous response, Applicant submits that Frisch and Kimchy disclose completely different tracking methods. Therefore, a person of ordinary skill in the art would not be motivated to combine Frisch and Kimchy to teach the claimed invention, where there is no reason or suggestion in the references to make such a combination.

Even if Frisch and Kimchy are combined, the combination does not disclose or suggest the subject matter of amended claims 1 and 9.

Amended claim 1 recites, among other things, a method of non-invasive exploration for accessing the digestive motility and transit of a human or

animal subject including the steps of "providing an ingestible transmitting element, said transmitting element being non-digestible and containing a transmission means transmitting at a given fixed frequency," "measuring a reference position when said transmitting element is in the mouth of the subject, before the subject swallows it" and "measuring, at a given time using at least three reception means . . . distributed around said subject's trunk, the phase shift of the frequency transmitted by said transmission means relative to the measurement of said reference position in order to obtain at least three phase-shift measurements." The combination of Frisch and Kimchy does not disclose or suggest such subject matter.

Frisch discloses a method for located an in vivo signal source but does not disclose measuring a reference position of the signal source when said transmitting element is in the mouth of a subject. As stated in Applicant's previous response, it is clear that measurements utilizing the source or capsule 100 are not made until the capsule is in a subject's stomach or digestive track as is evident by Figs. 1A, 1B, 4, 5 and 6 in Frisch.

Further, the Examiner states that:

In addition, it is a well known expedient to provide baseline measurements before the procedure is carried out. Using a reference position is a well known technique for determining the position of a remote device. In the case of monitoring an ingestible capsule, it would be obvious to use the capsule in the mouth as the reference position, as the capsule has not yet begun moving through the

digestive system (See the Office Action, page 6, bottom paragraph to page 7 first paragraph).

Applicant disagrees. It is no more obvious to measure a reference position in a subject's mouth than it is to measure the reference position in another part of the body. In fact, Applicant submits that it may be more obvious to measure a reference position of the capsule after it has been swallowed since it is located in the same area as the area where the other measurements will be taken and the reference phase

Furthermore in the claimed invention, the reference position is measured in a subject's mouth for specific reasons. The reference position is measured while in a subject's mouth to determine whether the chosen fixed frequency emitted by the transmitting element is compatible with the anatomy and size of the subject (see Applicant's specification, page 6, lines 22-25). Also, measuring the reference position in a subject's mouth provides a relative measurement to compare with the measurements taken in the digestive track where the element is moving faster and not spaced from the three receivers.

Frisch also does not disclose or suggest "measuring . . . the phase shift of the frequency transmitted by said transmission means relative to the measurement of said reference position in order to obtain at least three phase-shift measurements" as recited in amended claim 1. Kimchy fails to remedy the deficiencies of Frisch.

The Examiner states that:

It would be obvious to one of ordinary skill in the art . . . to have had the position location system operate with the phase shift triangulation method, as taught by Kimchy et al., in the device of Frisch et al. Different position determination systems are well known in the art, and it would be obvious to substitute any position determination system to locate the device within the body, as they would provide a suitable equivalent (Office Action, page 9, last paragraph).

Applicant disagrees. Kimchy discloses several different position tracking systems at page 10, paragraph [0116] used to track a radioactive emission detector. As stated above, radioactive emission detectors are invasive devices as they can harm certain subjects. Kimchy does not disclose or suggest using triangulation detection methods for non-invasive transmitters as in the claimed invention.

The Examiner states that it would be obvious to substitute any of the tracking systems for locating the capsule in Frisch. Although this may be true, the claimed invention is directed to a non-invasive tracking system and therefore, any tracking systems used for radioactive elements, such as those disclosed in Kimchy, would not work and thereby would not disclose or suggest the subject matter of the claimed invention. Additionally, neither Frisch nor Kimchy disclose or suggest any reasons to utilize a particular tracking system in Kimchy over another. Therefore, it would not be obvious to utilize any of the tracking systems in

Kimchy with the capsule of Frisch where there are no reasons or motivation to do so.

Frisch also does not disclose or suggest "determining, by triangulation on the basis of the at least three phase-shift measurements, a 3D position of said transmitting element" as recited in amended claim 1. As stated by the Examiner in the Office Action on the top of page 9, Frisch does not disclose such subject matter. As stated above, Kimchy discloses a radioactive emission detector that is equipped with a position tracking system for calculating the position of a radioactive emitting source in a subject's body. Kimchy does not disclose or suggest determining a 3D position of a transmitting element based on at least three phase-shift measurements.

For at least these reasons, Applicant submits that amended claim 1, and the claims that depend therefrom, are each patentably distinguished over the combination of Frisch and Kimchy and in condition for allowance.

Amended claim 9 includes similar subject matter to amended claim 1. Specifically, amended claim 9 recites, among other things, a non-invasive exploration system for assessing the digestive motility and transient of a human or animal subject that includes "an ingestible transmitting element which cannot be digested by said subject containing a transmission means for transmitting at a given fixed frequency," "means for measuring a reference position when said transmitting element is in the mouth of a subject, before the subject swallows it"

and "receiving means for receiving said fixed frequency comprising at least three receivers intended to be placed around the trunk of said subject, each receiver being able to measure at a given time the phase shift of said transmission frequency relative to the measurement of said reference position in order to obtain at least three phase-shift measurements."

As stated above, the combination of Frisch and Kimchy does not disclose or suggest such subject matter.

Accordingly, Applicant submits that amended claim 9, and the claims that depend therefrom, are each patentably distinguished over the combination of Frisch and Kimchy and in condition for allowance.

Claim 20 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Frisch, Kimchy and Patent Document No. WO 00/22975 to Iddan et al ("Iddan I"). Applicant disagrees with and traverses this rejection for the following reasons.

Amended claim 20 recites, among other things, a method of non-invasive exploration for assessing the digestive motility and transit of a human or animal subject including the steps of "providing a plurality of ingestible transmitting elements, each of said transmitting elements being non-digestible and containing a transmission means for transmitting at a given fixed frequency," "swallowing said ingestible transmitting elements over a period of time," "measuring . . . the phase shift of the frequency transmitted by each of said

transmission means relative to a reference phase to obtain at least three phase-shift measurements” and “determining, by triangulation on the basis of the at least three phase-shift measurements, a 3D position of each of said transmitting elements.”

As stated above, the combination of Frisch and Kimchy does not disclose or suggest such subject matter. Iddan I does not remedy the deficiencies of Frisch and Kimchy.

Iddan I discloses a method for delivering a device to a target location in a gastrointestinal tract. The method generates a map of the route taken by a capsule utilizing a camera system. Iddan I does not disclose or suggest “measuring . . . the phase shift of the frequency transmitted by each of said transmission means relative to a reference phase to obtain at least three phase-shift measurements” and “determining, by triangulation on the basis of the at least three phase-shift measurements, a 3D position of each of said transmitting elements” as in the claimed invention.

For at least these reasons, Applicant submits that amended claim 20 is patentably distinguished over the combination of Frisch, Kimchy and Iddan I and in condition for allowance.

Claims 12, 13 and 15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Frisch, Kimchy and in further view of WO 01/50941 to Refael. Claims 12, 13 and 15 depend from amended claim 9. Applicant therefore submits that claims 12, 13 and 15 are patentably distinguished over the combination of

Frisch, Kimchy and Refael for at least the reasons provided above with respect to amended claim 9. Furthermore, Refael does not disclose or suggest “means for measuring a reference position [of a] ... transmitting element ... before the subject swallows it,” “receiving means for receiving said fixed frequency comprising at least three receivers intended to be placed around the trunk of said subject, each receiver being able to measure at a given time the phase shift of said transmission frequency relative to the measurement of said reference position in order to obtain at least three phase-shift measurements” and “means for processing and analyzing the at least three phase-shift measurements made by said at least three receivers which are able to determine, by triangulation, a 3D position of said transmitting element.” Accordingly, Applicant submits that claims 12, 13 and 15 are each patentably distinguished over the combination of Frisch, Kimchy and Refael and in condition for allowance.

Claims 7 and 18 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Frisch, Kimchy and in further view of U.S. Patent No. 5,415,181 to Hogrefe et al. Claim 7 depends from amended claim 1 and claim 18 depends from amended claim 9. Applicant therefore submits that claims 7 and 18 are patentably distinguished over the combination of Frisch, Kimchy and Hogrefe for at least the reasons provided above with respect to amended claims 1 and 9. Furthermore, Hogrefe discloses a biomedical monitoring system using AM and FM signal transmission. Hogrefe does not disclose or suggest “measuring a

reference position [of a] ... transmitting element ... before the subject swallows it,” “measuring, at a given time using at least three reception means for receiving said fixed frequency that are distributed around said subject’s trunk, the phase shift of the frequency transmitted by said transmission means relative to the measurement of said reference position in order to obtain at least three phase-shift measurements” and “determining, by triangulation on the basis of the at least three phase-shift measurements, a 3D position of said transmitting element” as presently claimed. Accordingly, Applicant submits that claims 7 and 18 are patentably distinct from the combination of Frisch, Kimchy and Hogrefe and in condition for allowance.

Claims 8 and 19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Frisch, Kimchy and in further view of Iddan I. Claim 8 depends from amended claim 1 and claim 19 depends from amended claim 9. Therefore, Applicant submits that claims 8 and 19 are patentably distinguished over the combination of Frisch, Kimchy and Iddan I for at least the reasons provided above with respect to amended claims 1 and 9. Furthermore as stated above, Iddan I fails to remedy the deficiencies of Frisch and Kimchy.

Accordingly, Applicant submits that claims 8 and 19 are each patentably distinguished over the combination of Frisch, Kimchy and Iddan I and in condition for allowance.

Claims 6 and 11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Frisch, Kimchy and in further view of European Patent No. 0667115 to Iddan et al. ("Iddan II"). Claim 6 depends from amended claim 1 and claim 11 depends from amended claim 9. Therefore, Applicant submits that claims 6 and 11 are patentably distinguished over the combination of Frisch, Kimchy and Iddan II for at least the reasons provided above with respect to amended claims 1 and 9. Furthermore, Iddan II discloses an in vivo video camera system. Iddan II does not disclose or suggest "measuring a reference position [of a] ... transmitting element ... before the subject swallows it," "measuring, at a given time using at least three reception means for receiving said fixed frequency that are distributed around said subject's trunk, the phase shift of the frequency transmitted by said transmission means relative to the measurement of said reference position in order to obtain at least three phase-shift measurements" and "determining, by triangulation on the basis of the at least three phase-shift measurements, a 3D position of said transmitting element" as presently claimed. Accordingly, Applicant submits that claims 6 and 11 are each patentably distinguished over the combination of Frisch, Kimchy and Iddan II and in condition for allowance.

Applicant submits that in view of the above-identified amendments and remarks, the claims in their present form are patentably distinct over the art of record. Allowance of the rejected claims is respectfully requested. Should the Examiner discover there are remaining issues which may be resolved by a telephone interview, the Examiner is invited to contact Applicant's undersigned attorney at the telephone number listed below.

Respectfully submitted,

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